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In 2002, the Economist warned, “Genetics may yet threaten privacy, kill autonomy, make society homogeneous and gut the concept of human nature. But neuroscience could do all those things first.” My message is that nothing we have learned since 2002, despite the immense advances in neuroscience, suggests that this is true or is likely to be. And let me add that virtually everything I have to say about neuroscience applies also to the ethical implications of advances in genetics.

You already have in your briefing book my 2004 Law & Neuroscience chapter in which I argue that the new neuroscience raises no new problems for ethics, although it will produce data that will inevitably require new applications. Nothing in the years since publication has caused me to alter that view. Others disagree, but I shall not repeat that argument here.

Instead, I wish to focus on criminal responsibility and moral responsibility more generally because this has been the locus of most of the debate within law and ethics about the implications of the new neuroscience.

My thesis is that criminal responsibility, and law more generally, is an inevitably folk psychological enterprise that takes people seriously as acting agents to whom deserved praise and blame, reward and punishment, may properly be ascribed. Nothing in the new neuroscience remotely suggests that the agentic picture of ourselves that underlies interpersonal life, and its regulation by morality and law, is incorrect and needs radical revision, with all that such change implies. Taking each other seriously as deserving agents is central to

our moral and social lives and it should not be abandoned without the most compelling reason to do so. The radical challenge that many neuroscientists and others pose should be firmly resisted.

### Preliminaries

-I am not a dualist about brain and mind although ordinary language and interpersonal life are riddled with dualistic usage. I believe that it is a matter up, physical world governed more or less deterministically by the laws of the universe. Nevertheless, non-material but vital aspects of our lives, such as culture and normativity, can and do emerge from matter.

-The brain enables the mind and action, but we do not have a real clue about how this happens or about the brain-mind-action connection.

Wittgenstein famously asked in Philosophical Investigations: “What is left over if I subtract the fact that my arm went up from the fact that I raised my arm?”. We are no more able to answer the question today than when Wittgenstein originally asked it. If we do discover how the brain enables the mind, then I suspect that there will be a revolution in our understanding of ourselves, but it is not clear that we will ever be able to answer this question and certainly not in the lifetime of those in the room. (I might add that I, unlike the mysterians who believe it cannot be answered, am agnostic about this.)

-Despite my physicalist and determinist metaphysics, which rules out libertarian, contra-causal free will that some people think is a necessary precondition for responsibility, I believe robust responsibility is possible. A plausible metaphysical position concerning determinism and responsibility, compatibilism, is consistent with responsibility doctrines and practices we have good moral and legal reasons to endorse and it is not inconsistent with facts we know about ourselves as human beings. The metaphysical debate about responsibility is non-resolvable, so compatibilism is the most normatively desirable view to adopt.

Now let me turn to the heart of the presentation, which is how we should use neuroscience to resolve questions concerning responsibility and why we should reject any radical challenges. So much is at stake legally and morally, including the threat of criminal blame and punishment, that we must be especially careful about jettisoning

responsibility concepts and practices that have been developing for millennia.

Legal and moral discourse are folk psychological and use the language of action and practical reason. Neuroscience is a purely mechanistic discourse. Neurons, neural networks and the like do not have reasons and do not act. They just physically transform.

Therefore, the central question is how, precisely, does the neuroscience answer or help resolve a moral or legal issue. There is need for translation from one discourse to the other. My suggestion is that relevance should be firmly established and neuromodesty, rather than neuroarrogance, should guide our claims.

- Rhetorical v. Real relevance. It is all too easy to move from the fascinating images to alleged legal value, but careful analysis indicates that the translation is seldom successful.

- Neuromodesty in light of what we know. Avoiding neuroarrogance. Most of what we know is correlational and coarse-grained, rather than causal and fine-grained. This is not a critique of the new neuroscience but simply an understandable and realistic assessment of the state of knowledge today. Cognitive neuroscience is really an infant discipline working on arguably the hardest problem in science—the brain-mind-action connection.

- Actions speak louder than images

- Future directions: reform doctrine (e.g., the definition of mental state terms), resolve individual cases, assist efficient practice (e.g., prediction)

- The Radical Challenge: Victims of Neuronal Circumstances [VNC]

- A real position adopted by thoughtful people

- An interpretation: the position is driven by a distaste for retributivism and deontology more generally. The understanding of retributivism is often distorted, however, and it is difficult to imagine a moral and legal world that is entirely consequential. It is certainly not one that I would want to live in and it is certainly not entailed by the purported truth of VNC as I shall soon describe.

- The Evidence does not remotely support the completely reductivist VNC view and does not in the slightest suggest a replacement candidate for explaining interpersonal behavior.

-Reasons to Reject (none of these alone nor all taken together require the rejection of VNC, but they massively shift the burden of persuasion)

-The implausibility of the reductivist account. The need for a multi-field, multi-level approach to explaining human behavior.

-Common sense

-Positive Evidence that Intentions and other mental states do causal work

-Plausible Theory of Mind

-“Theory of Mind” in Psychology

-Evolution

-Normatively Inert. This is a crucial point that deserves further explanation.

VNC alas can provide no guidance about what people should do next and, in any event, degenerates into self-referential incoherence.

Suppose that you were convinced by the mechanistic view that you were not an intentional, rational agent after all. (Of course, the notion of being ‘convinced’ would be an illusion, too. Being convinced means that you were persuaded by evidence or argument, but a mechanism is not persuaded by anything. It is simply neurophysically transformed.)

What should you do now? You know that it is an illusion to think that your deliberations and intentions have any causal efficacy in the world.

You also know, however, that you experience sensations such as pleasure and pain and that you care about what happens to you and to the world. You cannot just sit quietly and wait for your neurotransmitters to fire. You cannot wait for determinism to happen. You must, and will of course, deliberate and act.

If one still thought that VNC was correct and that standard notions of genuine moral responsibility and desert are therefore impossible, one might nevertheless continue to believe that the law would not necessarily have to give up the concept of incentives. Through poorly-understood automatic processes, it is possible that various potential rewards and punishments would shape behaviour even if they did not do so as premises in practical reasoning. Such an account would be consistent with ‘black box’ accounts of economic incentives. For those who believe that a thoroughly naturalized account of human behaviour

entails complete consequentialism, such a conclusion might not be unwelcome.

On the other hand, this view seems to entail the same internal contradiction just explored. What is the nature of the ‘agent’ that is discovering the laws governing how incentives shape behaviour? Could understanding and providing incentives *via* social norms and legal rules simply be epiphenomenal interpretations of what the brain has already done? How do ‘we’ ‘decide’ which behaviours to reward or punish? What role does ‘reason’—a property of thought and agents, not a property of brains—play in this ‘decision’? Once again, the VNC account seems to swallow itself. Moreover, VNC proponents of consequentialism could hardly complain about those who refuse to ‘accept’ what the proponents think rationality requires. The allegedly misguided people who resist are simply the victims of their automatic brain states. They cannot be expected intentionally to use their capacity for reason to accept what the consequentialists believe reason demands. Indeed, the consequentialist’s belief is also an illusory mental state or it exists but plays no role in explaining behaviour.

Even if our mental states play no genuinely causal role (about which, we will never be certain until we solve the mind–body problem) human beings will find it almost impossible not to treat themselves as rational, intentional agents unless there are major changes in the way our brains work. Moreover, if one uses the truth of pure mechanism as a premise in deciding what to do, this premise yields no particular moral, legal or political conclusions. It will provide no guide to how one should live or how one should respond to the truth of VNC. If reasons, which are mental states, are epiphenomenal and normativity depends on reason, VNC is normatively inert.